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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/656,311	09/05/2003	Yingjian Chen	RDRT 1027-2	8204
22470	7590	06/03/2005	EXAMINER	
HAYNES BEFFEL & WOLFELD LLP P O BOX 366 HALF MOON BAY, CA 94019			KIM, PAUL D	
			ART UNIT	PAPER NUMBER
			3729	

DATE MAILED: 06/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/656,311

Applicant(s)

CHEN ET AL.

Examiner

Paul D Kim

Art Unit

3729

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 March 2005.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 13-16, 19, 21-27 and 31-53 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 13, 14, 16, 19, 21-27, 31-35, 38-47 and 50-53 is/are rejected.  
7) ☒ Claim(s) 15, 36, 37, 48 and 49 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3/29/04.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

This office action is a response to the amendment filed on 3/28/2005.

#### ***Claim Objections***

1. Claims 48-51 are objected to because of the following informalities: Claims 48-51 are objected to as being a substantial duplicate of claims 36 and 37. Claims 36 and 48, claims 37 and 49, claims 38 and 50, and claims 39 and 51 are essentially duplicates of one another or else are so close in content that they both cover the same thing, despite a slight difference in wording. It is improper to have two claims, which contain the same limitations, in the same application as one claim would be a substantial duplicate of the other claim.

According to the claimed invention, the phrase of "the thin layer of high magnetic moment material" appears to the same as the pedestal. Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 52 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The phrase "said pedestal" as recited in line 8 lacks antecedent basis.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 13, 19, 21-27 and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ju et al. (US PAT. 5,843,521) in view of Chen et al. (US PAT. 6,233,116).

Ju et al. teach a process of making a magnetic transducer comprising steps of: forming a first magnetic pole (32) of a magnetic material; depositing a first insulation layer (34); depositing a dielectric write gap layer (40) as shown in Fig. 3; forming an electrically conductive coil and depositing a second insulation layer (as disclosed on col. 11, lines 21-31); forming a thin layer of high magnetic moment material (42) by sputter depositing a lamina of FeAlN; masking the thin layer of the high magnetic moment material in a pattern corresponding to a second pole; plating a magnetic material in the pattern of the second pole (46) as shown in Figs. 3 and 4; performing a ion milling process to remove at least a portion of the high magnetic moment material not covered by the plated second pole as shown in Fig. 5 (see also col. 8, line 15 to col. 10, line 40).

As per claims 26 and 27 Ju et al. also teach that the second pole magnetic material is NiFe having a thickness of 2-5 microns (See also col. 9, lines 42-49).

As per claim 52 Ju et al. also teach a process of further etching the write gap layer and the first magnetic pole layer by ion beam and RIE as shown in Fig. 4 (see also col. 10, lines 6-18).

However, Ju et al. fail to teach the thin layer of high magnetic moment material of FeXN, X being selected from the group of materials consisting of Rh, Ta, Al, Ti and Zr, and sputter depositing a lamina of a cobalt based ferromagnetic amorphous alloy. Chen et al. teach a process of forming a magnetic transducer including a thin layer of high magnetic moment material (40) form on the cured second insulating layer (30) as shown in Fig. 4, wherein the thin layer of high magnetic moment material is made of laminated FeRhN/CoZrCr (as per claim 19, see also col. 7, line 9 to col. 8, line 21) in order to improve high frequency performance of the magnetic head. Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify a process of fabricating a magnetic transducer of Ju et al. by the thin layer of high magnetic moment material made of laminated FeRhN/CoZrCr as taught by Chen et al. in order to improve high frequency performance of the magnetic head.

As per claims 21-25 at the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to apply the high magnetic moment material as recited in the claimed invention because Applicant has not disclosed that the high magnetic moment material as recited in the claimed invention provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with Chen et al. because the high magnetic moment

Art Unit: 3729

material as recited in the claimed invention would perform equally well with the high magnetic moment material of FeRhN in Chen et al. Therefore, it would have been an obvious matter of design choice to modify the high magnetic moment material of Chen et al. to obtain the invention as specified in claims 21-25.

6. Claims 14, 16, 31-35, 38-47, 50, 51 and 53 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ju et al. in view of Chen et al., and further in view of Wang et al. (US PAT. 6,317,290).

Ju et al., modified by Chen et al., teach all of the limitations as set forth above except a pedestal formed on the first pole as per claim 14 and polishing process for the first insulating layer by CMP as per claims 16 and 53. Wang et al. teach a process of forming a magnetic head including a process of forming a pedestal (518,524 as shown in Fig. 6) made of magnetic material on a first pole (702) as shown in Fig. 7 (as per claim 13) by masking and plating on the first pole to form the pedestal (see also col. 6, lines 11-24 and col. 7, lines 47-57). Even though Wang et al. do not disclose to remove the mask, it would be obvious at the time the invention was made to a person having ordinary skill in the art to remove the mask of Wang et al. in order to form the pedestal on the first pole. Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify a process of fabricating a magnetic transducer of Ju et al., modified by Chen et al., by forming the pedestal on the first pole as taught by Wang et al. in order to effectively separate the high moment material effect from the read element.

Art Unit: 3729

As per claims 31-35 Wang et al. also teach a group of material for the high magnetic moment material form by sputtering as described in col. 6, lines 46-49 and col. 7, line 65 to col. 8, line 9.

As per claim 38-47, 50 and 51 Chen et al. teach the high magnetic moment material made of laminated FeRhN/CoZrCr (as per claim 19, see also col. 7, line 9 to col. 8, line 21) in order to improve high frequency performance of the magnetic head (see also rejection as set forth above for the design choice of claims 21-25).

Also, as per claim 53, Wang et al. teach a process of polishing the first insulating layer (528) by CMP process (708) as shown in Fig. 7 in order to provide smooth planar surface. Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify a process of fabricating a magnetic transducer of Ju et al., modified by Chen et al., by polishing the first insulating layer by CMP process as taught by Wang et al. in order to provide smooth planar surface.

### ***Allowable Subject Matter***

7. Claims 15, 36, 37, 48 and 49 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Response to Arguments***

8. Applicant's arguments with respect to claims 13-16, 19, 21-27, and 31-53 have been considered but are moot in view of the new ground of rejection.

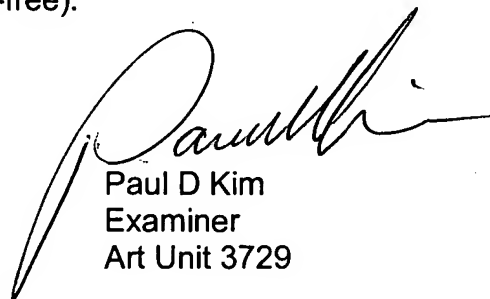
Art Unit: 3729

***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul D Kim whose telephone number is 571-272-4565. The examiner can normally be reached on Monday-Friday between 8:00 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 571-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Paul D Kim  
Examiner  
Art Unit 3729